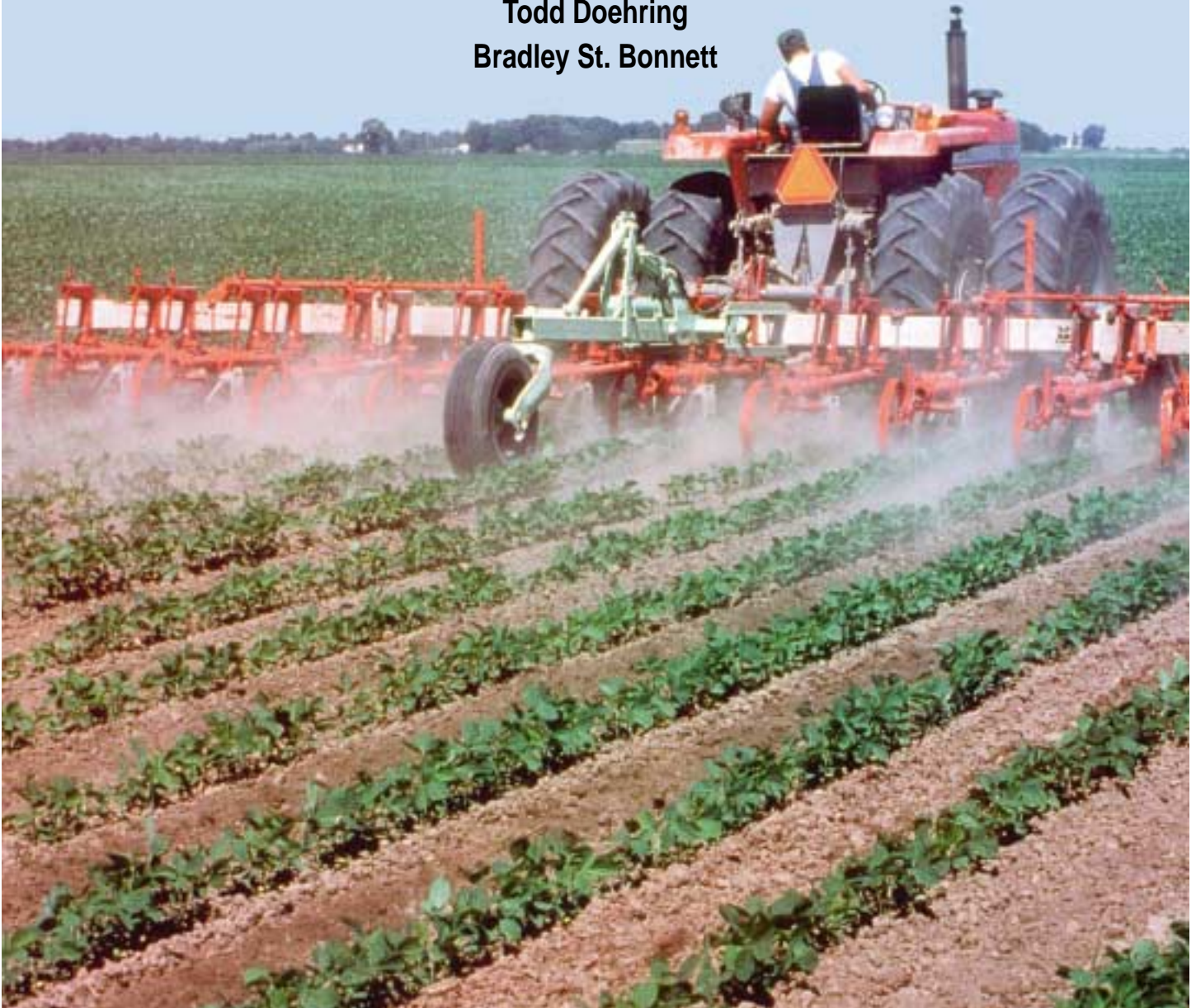


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Department of Agricultural and Consumer Economics • Agricultural Experiment Station  
College of Agricultural, Consumer and Environmental Sciences • University of Illinois at Urbana-Champaign  
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Lowell Hill is the L.J. Norton Professor Emeritus in the College of Agricultural, Consumer and Environmental Sciences, Department of Agricultural and Consumer Economics at the University of Illinois, Urbana-Champaign. Todd Doehring is Senior Consultant at Ag Education & Consulting, Savoy, Illinois. Karen Bender is Senior Research Specialist and Bradley St. Bonnett is a research assistant in the College of Agricultural, Consumer and Environmental Sciences, Department of Agricultural and Consumer Economics at the University of Illinois Urbana-Champaign.

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# Contents

Justification of the Study .....	3
Objectives and Procedures .....	3
Results from the Survey .....	4
Sources of Information in Variety Selection .....	4
Access to Information on Chemical Composition .....	8
Factors Influencing Variety Selection .....	9
Use of Own Seed .....	14
Consistency of Variety Selection .....	15
Conclusions .....	17
Survey .....	18

Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of the U.S. Department of Agriculture.

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# Justification of the Study

Domestic and international soybean processors are demanding more specific attributes, often variety controlled, from their suppliers. These can be obtained by any of several buyer strategies including contracting with farmers, paying premiums for certain attributes, and providing farmers with more information about varieties. The objective of many of these strategies is to alter the composition of the soybeans delivered to the processor. A change in soybean composition requires that farmers change varieties and alter the criteria on which they are currently selecting soybean varieties for planting. An effective strategy for influencing farmers' decisions requires information about the criteria which they currently use when selecting varieties.

There is an expanding array of information sources available to farmers. As new technology and information become available, the farmers' decision models may change. It is important for marketing firms, processors, and researchers to identify and measure changes over time in the criteria that farmers use in seed selection and their sources of information that influence selection of varieties.

## Objectives and Procedures

In order to meet the dual objectives of 1) describing farmers' strategies with respect to soybean variety selection, and 2) identifying changes in strategies over time, 496 soybean producers from the Farm Research Institute Panel (FRI) were mailed a short questionnaire in February 1998. Useable responses were received from 432 soybean producers. Not all respondents answered all questions, so the base number differs slightly among questions.

The same survey was sent to a random selection of 100 soybean growers in Christian County (CCSP), Illinois. These soybean producers are customers of an elevator planning to provide oil and protein content information to farmers as they deliver soybeans during the 1998 and 1999 harvests. This group of farmers,

using traditional market channels, will therefore obtain information about composition from their buyer. A total of 48 surveys were returned and 47 were useable for analysis. The same questionnaire was mailed to 30 producers participating in a variety experiment involving the Illinois Soybean Program Operating Board (ISPOB) and a multinational processor. These farmers are currently involved in an educational and informational program interacting with educators, consultants, and management from a local processing plant. Only eight producers from this group responded to the survey.

Due to the small number of responses from the ISPOB group, statistical tests were used only when comparing results from the FRI and CCSP groups. Comparisons with the ISPOB group will be shown but not subjected to statistical analysis.

Each of the three groups will be exposed to different types of information about soybean composition during the next three years. Access to the different sources of information is expected to alter perceptions and decision criteria of the three groups of farmers. The effects of differentiated information will be measured by comparing the results of the 1997 survey with results obtained from follow-up surveys planned for 1999 and 2000. The information strategy for the three groups is described briefly below:

- No systematic distribution of information will be made to the FRI panel, although there will be many sources of information and research results made available to the general public.
- The CCSP group will be provided information about oil and protein contents as they deliver soybeans to their local elevator. The elevator manager will be provided assistance in using promotional programs and developing marketing strategies to emphasize the importance of increasing the value of soybeans by selecting different varieties.
- The ISPOB group has been, and will continue to be, involved in an educational program and an experiment where selected varieties are converted to oil and meal in the local processing plant and information about processing value will be made available to producers.



# Results from the Survey

The survey instrument shown at the end of this publication, requested several kinds of information related to factors that could influence a farmer's selection of soybean seed and the potential for information to alter selection criteria. The first question was designed to determine the source of information about differences in the many varieties available from several seed companies.

## Sources of Information in Variety Selection

Respondents in all three surveys were asked to identify all of the sources of information which they used in selecting soybean varieties for planting. In the FRI panel, 89% of the respondents said they relied upon their seed company dealer for information related to differences among varieties (Table 1), while 59% relied on test plots and field days conducted by a seed company, and 53% obtained information from

other soybean growers. The performance trials conducted by the University of Illinois, Department of Crop Sciences, was the source for 28% of the respondents. The composition tests provided by the Illinois Crop Improvement Association (ICIA) ranked equally with the Cooperative Extension agents, with only 11% of the respondents using these sources. Five percent of the respondents checked the category of "other", with the primary subhead being farm magazines.

A two-tailed *t*-test revealed that CCSP and FRI responses differed statistically only on their reliance on seed company test plots and other soybean growers (Table 2). On all other categories the two groups were similar. Statistical tests were not conducted on the ISPOB group due to the small number of responses, however, the sources of information used by the ISPOB group were similar to responses from FRI and CCSP groups (Figure 1).

Producers in all three groups relied primarily on seed dealers for their information on varieties. Seed company test plots ranked second in all three groups. Twenty-five percent of the respondents in the ISPOB survey relied on ICIA published data on soybean composition. This group also referenced the U of I Perform-

Table 1.

Sources of Information Used in Selecting Soybean Seed, 1998, Illinois.

Source of Information	FRI Respondents		CCSP Respondents		ISPOB Respondents	
	No.*	Percent	No.*	Percent	No.*	Percent
Seed company dealers	383	89	40	89	8	100
Seed company field day test plots	254	59	36	80	5	63
Other soybean growers	228	53	33	73	5	63
U of I performance trials	122	28	15	33	3	38
Co-op Extension agent	48	11	2	5	0	0
ICIA composition tests	47	11	5	11	2	25
Other	22	5	1	2	1	13

\* blanks were not included.

**Sources:** FRI Panel survey of soybean producers, AEC, Savoy, 1998;  
CCSP random sample of soybean producers in Christian County, Illinois, 1998;  
ISPOB farmers participating in ISPOB experiment, Illinois, 1998.

Table 2.

**Sources of Information Used in Selecting Soybean Seed, 1998, Illinois.**

Source	Percent of Those Responding	Percent of Those Responding	Percent of Those Responding	p-value*
	FRI	CCSP	ISPOB	FRI/CCSP
Seed company dealers	89	89	100	0.517
Seed company field day test plots	59	80	63	0.995
Other soybean growers	53	73	63	0.993
U of I performance trials	28	33	38	0.747
Co-op Extension agent	11	5	0	0.099
ICIA composition tests	11	11	25	0.518
Other	5	2	13	0.214

\* p-values less than .99 indicate that there is no significant difference between FRI and CCSP respondents.

**Sources:** FRI Panel survey of soybean producers, AEC, Savoy, 1998;  
 CCSP random sample of soybean producers in Christian County, Illinois, 1998;  
 ISPOB farmers participating in ISPOB experiment, Illinois, 1998.

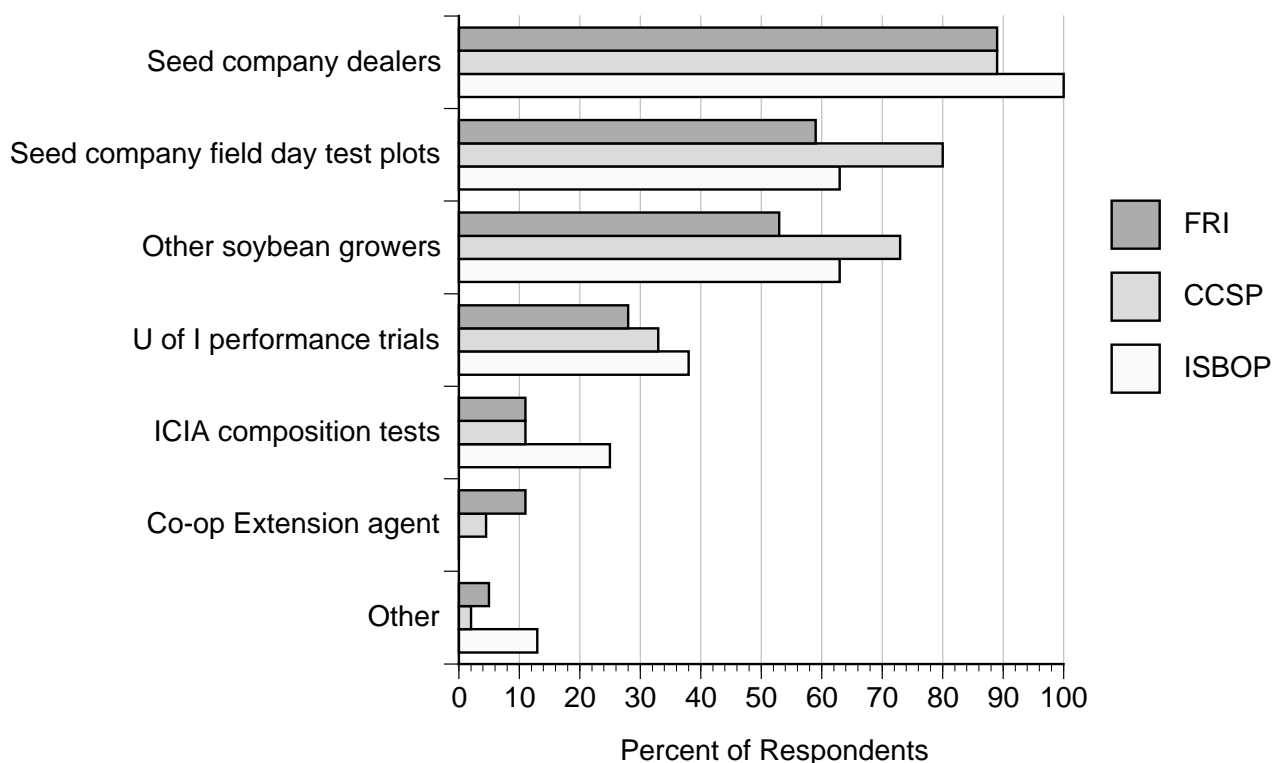


Figure 1.

Sources of Information for Seed Selection.

ance Trials more often than the FRI and CCSP groups. The educational program conducted with farmers in the ISPOB survey, emphasizing importance of composition, may have influenced their responses. This gives a possible explanation for the higher percentage relying on ICIA composition information and the yield data from the Crop Sciences Performance Trials.

A much earlier study gave similar results. In a study involving Canadian corn farmers, “seed dealers” were ranked slightly lower than “other growers” and the “Ontario Corn Performance Trials”, although their alternatives included separate categories for seed dealers, literature from seed dealers, and seed salesmen (Table 3). If these were combined, as they were in our study, the rankings from the studies would have been quite similar [Funk 1973, p. 34].

### *Demographic Relationships*

The Farm Research Institute Panel is comprised of a group of producers for which demographic data for each producer is also available. The demographic data considered relevant for this study included Gross Farm Income (GFI), age of the panel respondents, and total acres operated. Gross Farm Income represents the total amount of sales for a farm. The responses to the question concerning the source of soybean seed informa-

tion were cross-tabulated with the producer demographic data (Tables 4, 5, and 6). The cross-tabulation revealed several interesting results:

1. 36.6% of producers with gross farm income of \$200,000 or greater indicated they used the University of Illinois Crop Sciences Performance Trials in selecting varieties, in contrast to only 16.7% of producers with a gross farm income of less than \$100,000. The only producers in the FRI panel that reported using the Illinois Crop Improvement Association Composition Tests (ICIA) were those producers with gross farm income of \$200,000 or above.
2. Younger producers (up to age 60) were more likely to base their seed selection on experiences of other soybean growers (59%) than were older producers (47.5%). Older producers tended to rely more on Cooperative Extension agents and ICIA Composition Tests, with rates of 15.4% and 14.2% respectively, than did younger producers who show about 9% for both sources.
3. Producers who operated a larger number of acres (total crop acres greater than 500 acres) relied on the University of Illinois Crop Sciences Performance Trials more frequently (33.9%) than did producers operating acreage of 500 acres or less (19.1%).

*Table 3.*

### **Comparison of Sources of Information Used for Seed Selection Between 1998 Illinois Soybean Survey and 1972 Canadian Corn Survey.**

<b>Illinois Soybean Producers' Sources of Information</b>		<b>Canadian Corn Producers' Sources of Information</b>	
Seed company dealers	89%	Other corn growers	3.57
Other soybean growers	53%	Ontario corn performance trials	3.57
U of I performance trials	28%	Seed company dealers	3.44
Co-op Extension agent	11%	University personnel	2.18
Respondents checked all boxes that applied		Respondents chose from a relative value scale	

**Sources:** FRI Panel survey of soybean producers, AEC, Savoy, 1998;

Funk, Thomas F., “A Description of Seed Corn Buying Behavior” University of Guelph, Ontario, Canada, 1973.

Table 4.

**Cross-Tabulation of Producers' Gross Farm Income with Sources of Information for Soybean Seed Selection.**

Gross Farm Income	Seed Dealers	Seed Company Test Plots	Other Growers	U of I Performance Trials	Co-op Extension	ICIA Composition Tests	Other	All Respondents
----- percent -----								
<\$100,000	91.2	54.9	40.2	16.7	4.9	0.0	4.9	23.9
\$100,000–\$199,999	92.5	61.7	52.5	25.0	10.8	0.0	2.5	28.1
\$200,000+	87.3	60.5	55.6	36.6	11.2	11.7	4.9	48.0
Total								100.0

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 5.

**Cross-Tabulation of Producers' Age with Sources of Information for Soybean Seed Selection.**

Age	Seed Dealers	Seed Company Test Plots	Other Growers	U of I Performance Trials	Co-op Extension	ICIA Composition Tests	Other	All Respondents
----- percent -----								
≤50	89.4	56.0	54.6	34.0	7.8	7.8	6.4	33.0
51–60	89.5	63.7	63.7	28.2	9.7	10.5	4.8	29.0
61+	90.1	59.3	47.5	24.1	15.4	14.2	4.3	37.9
Total								100.0

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 6.

**Cross-Tabulation of Producers' Operated Acreage with Sources of Information for Soybean Seed Selection.**

Total Acres Operated	Seed Dealers	Seed Company Test Plots	Other Growers	U of I Performance Trials	Co-op Extension	ICIA Composition Tests	Other	All Respondents
----- percent -----								
≤500	91.4	54.6	51.3	19.1	10.5	9.9	7.2	35.6
501–750	88.9	59.6	56.6	29.3	13.1	12.1	6.1	23.2
751–1499	90.0	66.7	53.3	36.7	10.0	11.7	1.7	28.1
1500+	85.7	57.1	62.5	35.7	12.5	10.7	0.0	13.1
Total								100.0

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.



## Access to Information on Chemical Composition

Oil and protein contents (chemical composition) of soybeans are becoming more important, since some domestic and foreign buyers have started specifying minimum levels of these attributes. A concern by some processors that protein levels are declining over time has increased the concern as to whether farmers have access to information about oil and protein contents when selecting varieties. In response to the question, "Do any of your seed dealers provide information

about differences in oil and protein contents among varieties?", 56.7% of the FRI panelists said, "no" and 43.3% said, "yes" (Table 7). Seed distributors are providing information about oil and protein contents to less than half of the respondents.

The CCSP and ISPOB groups produced results very close to those reported by FRI panelists (*Figure 2*). All groups showed a consistent pattern that seed dealers are providing chemical composition information to about 42% of their customers (Table 8). There were no statistically significant differences among the three groups.

Table 7.

**Information on Chemical Composition Provided by Seed Dealers.**

Source of Information	FRI Respondents		CCSP Respondents		ISPOB Respondents	
	No.	Percent	No.	Percent	No.	Percent
Seed dealers provided information	179	43.3	19	41.3	3	42.9
Seed dealers did not provide information	234	56.7	27	58.7	4	57.1
Total	413	100.0	46	100.0	8	100.0

**Sources:** FRI Panel survey of soybean producers, AEC, Savoy, 1998;  
CCSP random sample of soybean producers in Christian County, Illinois, 1998;  
ISPOB farmers participating in ISPOB experiment, Illinois, 1998.

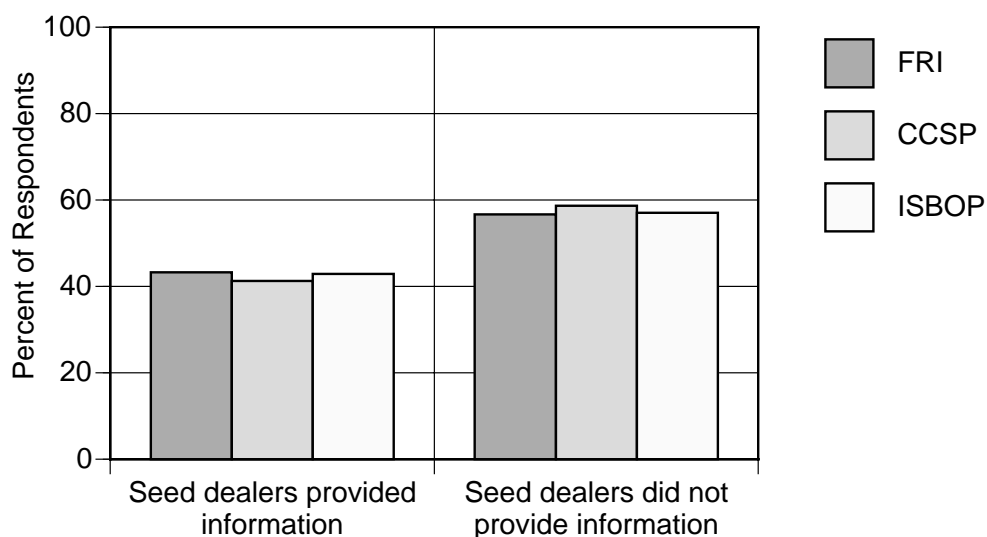


Figure 2.  
Chemical Composition  
Information Provided  
by Seed Dealers.

## Demographic Relationships

The results from the FRI survey were cross-tabulated with their demographic classifications. Over half the producers (51.1%) who operated 500 acres or less indicated that seed dealers provided them with information on oil and protein contents, while only 39.3% (weighted average of 3 larger categories) of producers operating more than 500 acres reported that they were provided composition information (Table 9). Surprisingly, only 37.3% of respondents from the highest income group indicated they were receiving chemical composition information from seed dealers, signifi-

cantly lower than those from lower income groups (Table 10). There was no discernable pattern associated with age of operator (Table 11).

## Factors Influencing Variety Selection

Farmers must consider a large number of factors when selecting varieties. Some of these factors are related to agronomic characteristics such as yield and maturity date. Other factors are related to the attributes of the final product. A third category of criteria relates to economic factors associated with the marketing practices

Table 8.

### Information on Chemical Composition Provided by Seed Dealers.

Source of Information	FRI	CCSP	ISPOB
	----- percent -----		
Seed dealers provided information	43.3	41.3	42.9
Seed dealers did not provide information	56.7	58.7	57.1
Total	100.0	100.0	100.0

**Sources:** FRI Panel survey of soybean producers, AEC, Savoy, 1998;  
CCSP random sample of soybean producers in Christian County, Illinois, 1998;  
ISPOB farmers participating in ISPOB experiment, Illinois, 1998.

Table 9.

### Cross-Tabulation of Producers' Operated Acreage with Chemical Information Provided by Seed Dealer.

Total Acres Operated	Respondents	Yes %	No %
≤500	152	51.1	48.9
501–750	99	35.7	64.3
751–1499	120	39.3	60.7
1500+	56	45.5	54.5
Total	427		

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 10.

### Cross-Tabulation of Producers' Gross Farm Income with Chemical Information Provided by Seed Dealer.

Gross Farm Income	Respondents	Yes %	No %
<\$100,000	102	43.0	57.0
\$100,000–\$199,999	120	54.5	45.5
\$200,000+	205	37.3	62.7
Total	427		

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 11.

### Cross-Tabulation of Producers' Age with Chemical Information Provided by Seed Dealer.

Age (Years)	Respondents	Yes %	No %
≤50	141	43.2	56.8
51–60	124	44.6	55.4
61+	162	42.5	57.5
Total	427		

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

of the seed company. Respondents were asked to rank each of 11 factors on a scale of 1 (not very important) to 5 (very important). The simple mean of the scores was calculated as an indication of the factor's relative importance in variety selection. A second measure was the percent of respondents who gave each of the factors a score of 5.

Among the FRI panelists, the average score ranged from a low of 1.9 for "contract with buyer that specifies the variety" to a value of 4.8 on the factor of "yield" (Table 12). The second lowest rating (2.6) was given to the oil and protein contents. This supports the contention that without economic incentives, farmers place little importance on soybean composition. Yield is clearly the dominating characteristic (4.8) followed by morphological characteristics such as disease resistance (4.4), maturity (4.1), and resistance to lodging and shatter (4.2). The price of seed received an average score of only 3.6, suggesting that the cost of seed might be a minor factor in the economics of soybean production when compared with yield, or resistance to shatter, lodging, and disease. Thirty-one respondents also added an "other" category, with explanations ranging from "compatibility to soils that I farm" to "a nice bean to combine". None of the specific items in the "other" category had more than three responses, so they were not summarized in this report. The factor of yield was rated as 5 (very important) by 82.1% of the respondents.

In contrast, only 3.7% of respondents rated oil and protein contents as 5 (very important).

The CCSP and ISPOB survey groups produced very similar results to the FRI panel (*Figure 3*). There was a small difference in the factor concerning a contract that specifies variety. The CCSP and ISPOB groups indicated that they placed a higher value on this factor than FRI respondents (Tables 13, 14, 15). This is not surprising since 36% of the CCSP group reported they had contracted some of their crop. However, the higher level of contracting did not seem to influence the other factors important to soybean seed selection. Although the ISPOB group has been involved in several meetings with processors and educators, none of these respondents ranked oil and protein contents higher than 3.

In the Canadian study, yield was given a score of 4.92 and seed price a score of 3.11, out of a possible 5, similar in most respects to our study (Table 16). The major difference was the high rating (4.73) given to quality of the harvested corn by the Canadian producers, compared to the low rating (2.6) given to oil and protein contents by Illinois producers. However, the questions were not really comparable between the two studies. The quality concerns for corn in 1973 were primarily grade factors on which discounts were assessed in the market [Funk, 1973; p. 37]. In the Illinois' soybean survey, "quality" was limited to oil and protein contents where price differentials are seldom used in the commercial market.

Table 12.

**FRI — Respondents' Rating of Factor Importance in Soybean Seed Selection, Illinois, 1998.**

Factor	Number of Respondents <sup>1</sup>	Average Rating	Percent Selecting Each Score				
			5	4	3	2	1
Maturity	418	4.1	41.9	38.0	18.9	1.0	0.2
Disease resistance	417	4.4	53.5	37.4	8.6	0.5	0.0
Oil/protein contents	406	2.6	3.7	13.8	40.9	25.9	15.7
Company reputation	415	3.8	27.5	40.2	26.5	5.1	0.7
Resistance to lodging	420	4.2	37.6	48.1	12.9	1.4	0.0
Resistance to shatter	417	4.2	42.4	43.6	11.8	2.2	0.0
Herbicide compatibility	410	3.8	33.9	30.2	24.9	6.6	4.4
Previous experience	413	4.0	31.2	48.2	16.7	3.4	0.5
Contract specifies variety	377	1.9	6.9	7.7	11.9	19.1	54.4
Yield	408	4.8	82.1	17.2	0.5	0.2	0.0
Seed price	404	3.6	18.6	43.8	27.5	7.9	2.2

<sup>1</sup> The total number of responses to this question was 427. However, not all respondents rated every item on the list.

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

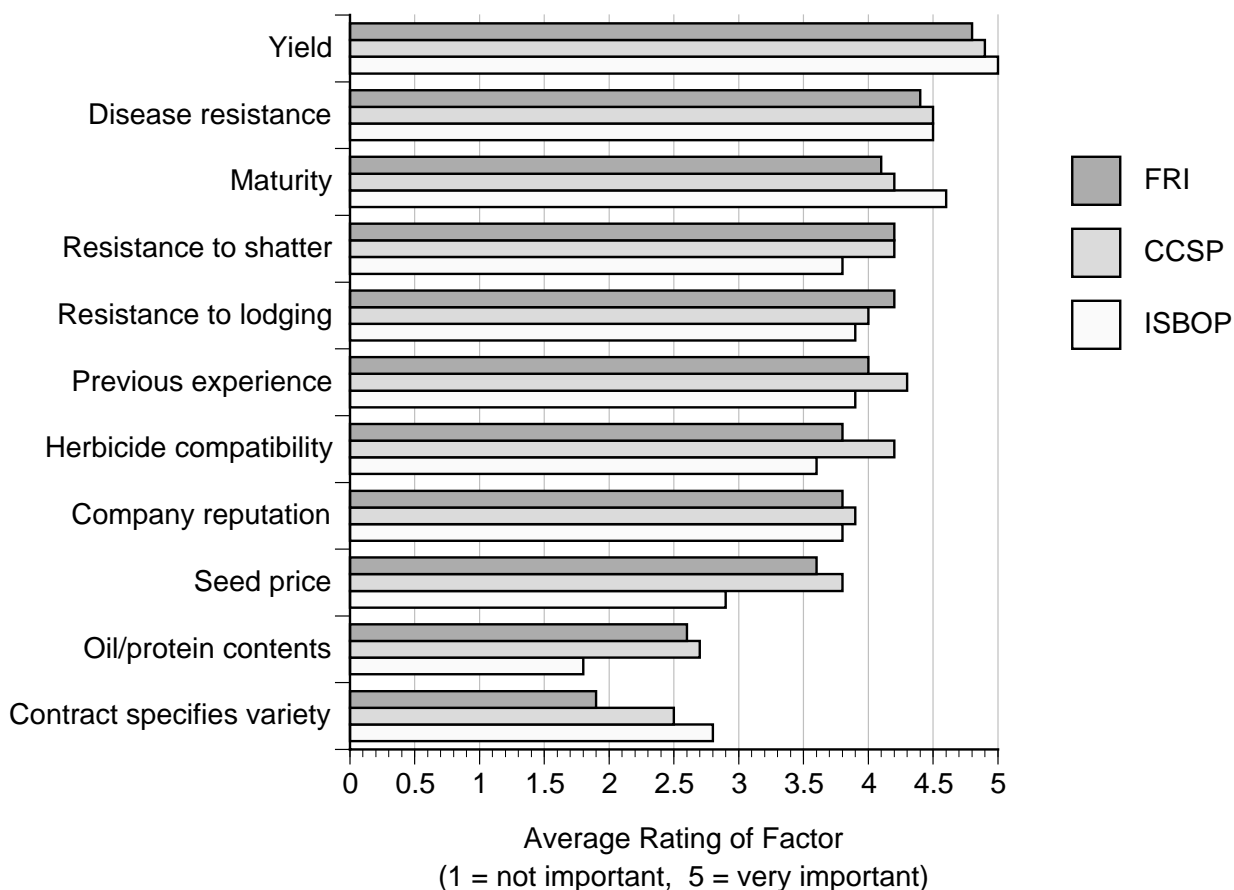


Figure 3.  
Important Factors in Soybean Seed Selection.

Table 13.

**CCSP — Respondents' Rating of Factor Importance in Soybean Seed Selection, Illinois, 1998.**

Factor	Number of Respondents <sup>1</sup>	Average Rating	Percent Selecting Each Score				
			5	4	3	2	1
Maturity	46	4.2	41.3	34.8	23.9	0.0	0.0
Disease resistance	46	4.5	58.7	34.8	6.5	0.0	0.0
Oil/protein contents	43	2.7	7.0	16.3	39.5	14.0	23.3
Company reputation	43	3.9	41.9	18.6	30.2	7.0	2.3
Resistance to lodging	46	4.0	32.6	41.3	23.9	2.2	0.0
Resistance to shatter	46	4.2	45.7	37.0	13.0	2.2	2.2
Herbicide compatibility	44	4.2	45.5	29.5	22.7	2.3	0.0
Previous experience	43	4.3	44.2	46.5	9.3	0.0	0.0
Contract specifies variety	30	2.5	10.0	16.7	23.3	16.7	33.3
Yield	42	4.9	92.9	7.1	0.0	0.0	0.0
Seed price	42	3.8	31.0	28.6	28.6	9.5	2.4

<sup>1</sup> The total number of responses to this question was 46. However, not all respondents rated every item on the list.

**Source:** CCSP random sample of soybean producers in Christian County, Illinois, 1998.

Table 14.

**ISPOB — Respondents' Rating of Factor Importance in Soybean Seed Selection, Illinois, 1998.**

Factor	Number of Respondents <sup>1</sup>	Average Rating	Percent Selecting Each Score				
			5	4	3	2	1
Maturity	8	4.6	75.0	12.5	12.5	0.0	0.0
Disease resistance	8	4.5	62.5	25.0	12.5	0.0	0.0
Oil/protein contents	8	1.8	0.0	0.0	12.5	50.0	37.5
Company reputation	8	3.8	25.0	37.5	25.0	12.5	0.0
Resistance to lodging	8	3.9	25.0	37.5	37.5	0.0	0.0
Resistance to shatter	8	3.8	12.5	50.0	37.5	0.0	0.0
Herbicide compatibility	8	3.6	25.0	25.0	37.5	12.5	0.0
Previous experience	8	3.9	37.5	12.5	50.0	0.0	0.0
Contract specifies variety	8	2.8	25.0	0.0	25.0	25.0	25.0
Yield	8	5.0	100.0	0.0	0.0	0.0	0.0
Seed price	8	2.9	12.5	12.5	25.0	25.0	12.5

<sup>1</sup> The total number of responses to this question was 8.

**Source:** ISPOB farmers participating in ISPOB experiment, Illinois, 1998.

Table 15.

**Respondents' Rating of Factor Importance in Soybean Seed Selection, Illinois, 1998.**

Factor	Average Rating	Average Rating	Average Rating	Ranking (weighted)
	FRI	CCSP	ISPOB	1 = highest 11 = lowest
Maturity	4.1	4.2	4.6	3
Disease resistance	4.4	4.5	4.5	2
Oil/protein contents	2.6	2.7	1.8	10
Company reputation	3.8	3.9	3.8	8
Resistance to lodging	4.2	4.0	3.9	5
Resistance to shatter	4.2	4.2	3.8	4
Herbicide compatibility	3.8	4.2	3.6	7
Previous experience	4.0	4.3	3.9	6
Contract specifies variety	1.9	2.5	2.8	11
Yield	4.8	4.9	5.0	1
Seed price	3.6	3.8	2.9	9

**Sources:** FRI Panel survey of soybean producers, AEC, Savoy, 1998;  
CCSP random sample of soybean producers in Christian County, Illinois, 1998;  
ISPOB farmers participating in ISPOB experiment, Illinois, 1998.



### Demographic Relationships

There were few relationships among demographic variables and factors influencing variety selection. Seed price was of somewhat more importance to producers with Gross Farm Income (GFI) of less than \$100,000, with 25% of these producers rating seed price as a 5 (very important) and an average score of 3.89 (Table 17).

Only 17% of producers with a GFI of \$100,000 or greater rated seed price as very important. Average scores for seed price decreased as gross farm income increased. Another relationship of interest was between age and importance of oil and protein contents. Twice as many producers in the 60 years and older classification rated oil and protein as a 4 or 5 in comparison to younger pro-

Table 16.

#### Comparison of Important Factors for Seed Selection Between 1998 Illinois Soybean Survey and 1972 Canadian Corn Survey.

Illinois Soybean Factor	Factor Rating	Canadian Corn Factor	Factor Rating
Yield	4.8	Yield	4.9
Maturity	4.1	Maturity	4.5
Company reputation	3.8	Company reputation	3.4
Seed price	3.6	Seed price	3.1
Oil/protein contents	2.6	Quality	4.7

Sources: FRI Panel survey of soybean producers, AEC, Savoy, 1998;

Funk, Thomas F., "A Description of Seed Corn Buying Behavior" University of Guelph, Ontario, Canada, 1973.

Table 17.

#### Cross-Tabulation of Gross Farm Income with Average Rating of Factors Important to Soybean Seed Selection.

Factor	Gross Farm Income		
	<\$100,000	\$100,000–\$199,999	\$200,000+
Maturity	4.33	4.12	4.19
Disease resistance	4.40	4.47	4.43
Oil/protein contents	2.68	2.72	2.57
Company reputation	3.86	3.91	3.88
Resistance to lodging	4.29	4.18	4.20
Resistance to shatter	4.29	4.31	4.22
Herbicide compatibility	3.76	3.77	3.91
Previous experience	3.97	4.07	4.11
Contract specifies variety	1.70	1.93	2.04
Yield	4.72	4.82	4.85
Seed price	3.89	3.78	3.53

Source: FRI Panel survey of soybean producers, AEC, Savoy, 1998.

ducers (Table 18). Larger acreage operated was associated with increasing average scores for company reputation and decreasing scores for seed price (Table 19). Oil and protein contents received the highest score from the 500 acres and less size group.

## Use of Own Seed

Farmers saving their own seed from their previous crop are not influenced, in that particular year, by new varieties or new information. The variety chosen in a previous year becomes the variety for the current year on those acres where “own seed” is planted. The question, “What percent of last year’s seed was from your previous year’s crop?” was included to indicate limits to the introduction of new varieties. A large number of farmers in the survey planted at least a portion of their acreage using seed saved from the previous year’s crop. Almost 5% of the respondents in the FRI panel reported that all of their 1997 soybean acreage was planted with seed from their own 1996 harvest and over 15% of the respondents had planted 70% or more of their 1997 acreage from seed saved from the 1996 crop (Table 20). On average, 20% of the acreage of the 424 respondents was planted with their own saved seed.

Table 18.

### Cross-Tabulation of Producers’ Age with Average Rating of Factors Important to Soybean Seed Selection.

Factor	Producers’ Age	
	≤60 Years	61+ Years
Maturity	4.18	4.24
Disease resistance	4.39	4.53
Oil/protein contents	2.51	2.87
Company reputation	3.85	3.96
Resistance to lodging	4.12	4.40
Resistance to shatter	4.17	4.42
Herbicide compatibility	3.88	3.64
Previous experience	4.09	3.91
Contract specifies variety	1.94	1.96
Yield	4.83	4.75
Seed price	3.62	3.84

Source: FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 19.

### Cross-Tabulation of Producers’ Operated Acreage with Average Rating of Factors Important to Soybean Seed Selection.

Factor	Producers’ Operated Acreage			
	≤500	501–750	751–1499	1500+
Maturity	4.27	4.16	4.18	4.18
Disease resistance	4.40	4.53	4.44	4.38
Oil/protein contents	2.75	2.62	2.53	2.61
Company reputation	3.86	3.88	3.90	3.93
Resistance to lodging	4.24	4.19	4.23	4.18
Resistance to shatter	4.25	4.31	4.29	4.19
Herbicide compatibility	3.68	3.89	3.94	3.84
Previous experience	4.00	4.03	4.13	4.11
Contract specifies variety	1.81	1.86	2.04	2.11
Yield	4.77	4.84	4.82	4.84
Seed price	3.82	3.70	3.66	3.40

Source: FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 20.

**FRI — Own Seed Used from Previous Crop, Illinois, 1997.**

Percent of Acres Planted	Number of Respondents	Percent of Respondents	Cumulative Percent of Respondents
100	20	4.7	4.7
90–99	8	1.9	6.6
80–89	18	4.3	10.9
70–79	20	4.7	15.6
60–69	11	2.6	18.2
50–59	21	4.9	23.1
40–49	6	1.4	24.5
30–39	1	0.2	24.8
20–29	22	5.2	29.9
10–19	8	1.9	31.8
1–9	3	0.7	32.5
0	286	67.5	100.0

Total responses = 424

Average acreage planted with own seed by all respondents = 20%

**Source:** FRI Panel survey of soybean producers, AEC, Savoy, 1998.

Table 21.

**CCSP — Own Seed Used from Previous Crop, Illinois, 1997.**

Percent of Acres Planted	Number of Respondents	Percent of Respondents	Cumulative Percent of Respondents
100	0	0.0	0.0
90–99	0	0.0	0.0
80–89	0	0.0	0.0
70–79	3	6.4	6.4
60–69	1	2.1	8.5
50–59	6	12.8	21.3
40–49	1	2.1	23.4
30–39	1	2.1	25.5
20–29	4	8.5	34.0
10–19	2	4.3	38.3
1–9	0	0.0	38.3
0	29	61.7	100.0

Total responses = 47

Average acreage planted with own seed by all respondents = 16.0%

**Source:** CCSP random sample of soybean producers in Christian County, Illinois, 1998.

A comparison of the FRI and CCSP groups revealed that in both groups approximately one-third of the farmers used some of their own seed for the following year's crop (Tables 20, 21). Roughly one-fifth to one-fourth of the CCSP respondents allocated from half to all of their acreage to their own seed. The small number of responses to the ISPOB survey made detailed comparisons impossible. However, there were no significant differences in allocation of acreage to own seed among the three groups (Tables 20, 21, 22).

### Consistency of Variety Selection

In addition to identifying the sources of information and factors influencing variety selection, another objective was to determine how frequently producers shift to new varieties from one year to the next. Producer respondents from the FRI panel identified variety and the acreage they planted to each in 1997 and 1998. Because some respondents only identified the seed company name, such as Asgrow, and not the specific variety, the acreage for all producers for each

year was initially summed by seed company. The total acreage planted by farmers to public or private varieties (as opposed to own seed) equaled 109,882 acres in 1997 and 109,438 acres in 1998.

The average acreage planted to varieties of a given seed company was approximately 990 acres in both 1997 and 1998, although the range in each year for a given seed company was from zero acres to over 20,000 planted acres. A paired *t*-test was conducted to determine if there was a significant shift in acreage planted to varieties by the various seed companies in 1997 versus 1998. For example, was there a significant change in DeKalb seed acreage between 1997 and 1998? The results indicated that there was not a significant shift in acreage among seed companies.

Although the previous analysis suggests that on aggregate, total acres planted to varieties supplied by a particular seed company do not vary greatly from year to year, it is still of interest to determine how frequently producers shift varieties from one year to the next within an individual seed company's variety portfolio. A subset of the survey database was created to include only those

responses where producers identified variety by name and number and reported acreage planted for both 1997 and 1998. The total number of responses in the subset was 305. The average number of varieties planted by individual producers was 3.13 in 1997 and 5.62 in 1998.

When evaluating how frequently producers change varieties from one year to the next, it was determined that within this subset of respondents, 25.6% planted the same varieties both years; 74.4% changed one or more varieties between 1997 and 1998; 40.7% changed three or more varieties; and 15.4% of the producers changed five or more varieties between the two years (*Figure 4*). Further analysis was conducted to identify the quantity of acreage that was shifted among varieties.

Producers in the group who introduced at least one new variety in 1998, devoted on average 36.5% of their soybean acreage to new varieties and retained 63.5% of their acreage in the same set of varieties that were planted in 1997 (*Figure 5*). This indicates that 36.5% of planted soybean acreage within the group of respondents that changed varieties (74.4% of all respondents), was planted with a different variety.

The acreage planted to a new variety varied from a few acres (which may have been a test plot) to a majority of the acreage planted. It would be interesting to know the producer's motivations for trying new varieties, but the information from the survey did not contain sufficient detail to make that determination. The demographics of acreage planted, gross income, and age did not provide any conclusive evidence.

Table 22.

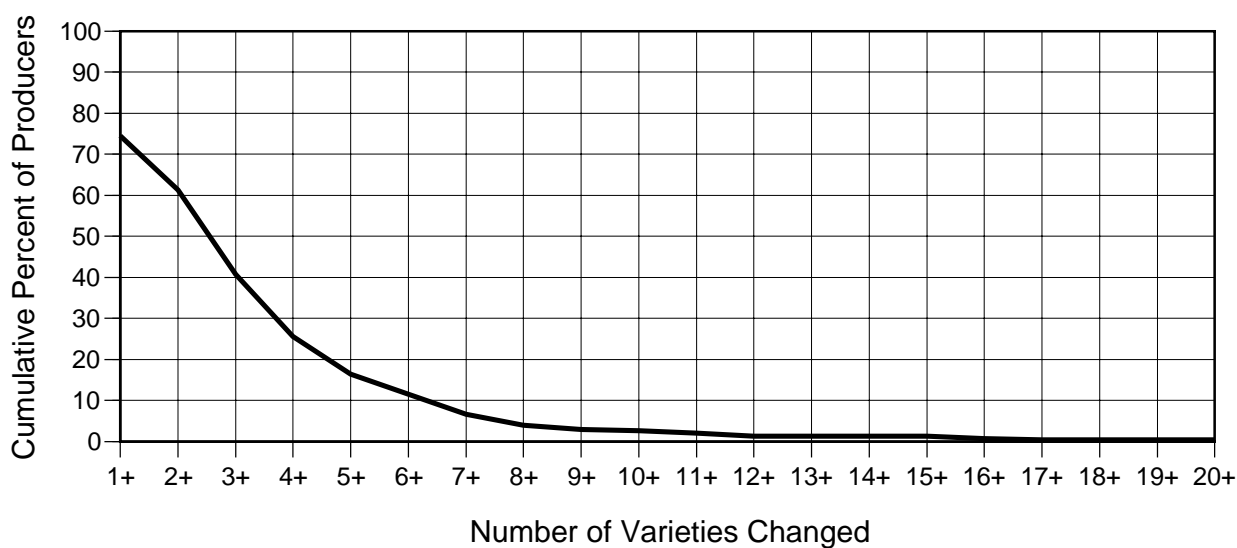
**ISPOB — Own Seed Used from Previous Crop, Illinois, 1997.**

Percent of Acres Planted	Number of Respondents	Percent of Respondents	Cumulative Percent of Respondents
100	0	0.0	0.0
90–99	1	14.3	14.3
80–89	0	0.0	14.3
70–79	0	0.0	14.3
60–69	0	0.0	14.3
50–59	0	0.0	14.3
40–49	0	0.0	14.3
30–39	0	0.0	14.3
20–29	1	14.3	28.6
10–19	0	0.0	28.6
1–9	0	0.0	28.6
0	5	71.4	100.0

Total responses = 7

Average acreage planted with own seed by all respondents = 16.1%

**Source:** ISPOB farmers participating in ISPOB experiment, Illinois, 1998.



*Figure 4.*  
Cumulative Percent of Producers Changing Varieties of Soybean Seed, 1997-1998 (*FRI Survey*).

## Conclusions

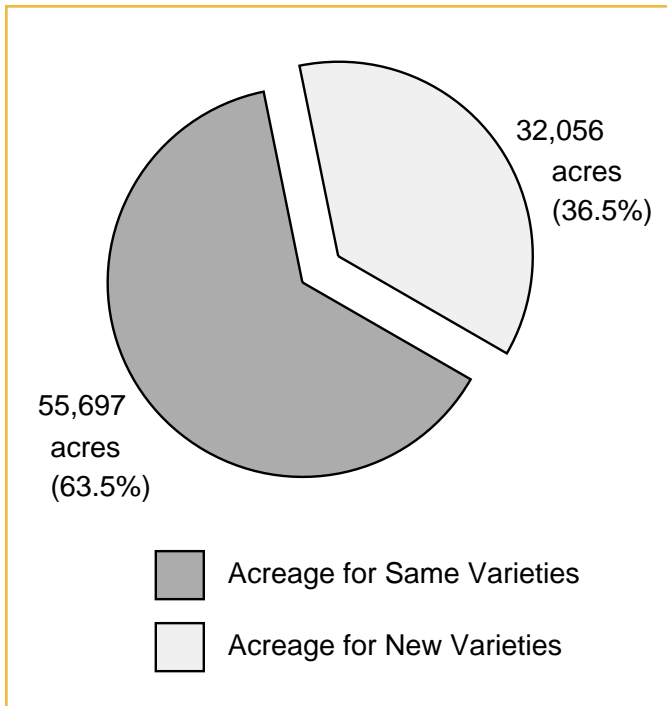


Figure 5.  
Allocation of Acres Among Producers Who  
Changed Varieties, 1997-1998.

The current information sources for producers are a direct reflection of the marketing channels for generic products. The three groups selected for the study were quite similar on the attributes and decision criteria at this point in time. The responses from the three survey groups show that variety selection is still based on maximizing yield and minimizing crop losses regardless of constituent characteristics. The high rating of morphological qualities suggests that USDA grade factors and standards play a role in variety selection — this was consistent with results from Canada for corn growers surveyed in 1972.

Sources of information were found to differ by demographic characteristics of respondents. Larger producers (those operating more than 500 acres) received information about oil and protein contents from seed dealers less frequently than smaller operators and rated the seed selection criteria of “buyer contract specifies variety”, “yield”, “previous experience”, and “company reputation” higher than those operating less than 500 acres — “price of seed” was given a lower rating. Farmers older than 60 years of age rated “yield” and “previous experience” lower, and rated “company reputation”, “seed price”, and “oil/protein contents” higher than younger farmers. None of the groups gave high ratings to public sources of information as selection criteria, relying instead on information from commercial firms and previous experience.

The results of these surveys indicate that producers are willing to change varieties in response to new information, often on an experimental basis, and to a lesser extent to shift among companies or brands of seed. While cost of seed and returns in the form of yields are clearly important, there is no indication that price premiums for oil and protein contents are currently a part of producers’ decision models.

Future surveys will determine if changes occur among the three groups when they are exposed to different types or intensity of information and incentives. Economic incentives appear to be the driving force behind variety selection. Altering the mix of varieties on the basis of composition will require that the role of economic incentives be carefully evaluated.



# SUPPLEMENTAL SOYBEAN SURVEY

1. Where do you obtain information about new soybean varieties? (*check all that apply*)

- |   |  |
|---|--|
| <input type="checkbox"/> Other soybean growers<br><input type="checkbox"/> Seed company dealers<br><input type="checkbox"/> Crop extension agent<br><input type="checkbox"/> Other (please specify) _____ | <input type="checkbox"/> Seed company field day test plots<br><input type="checkbox"/> Illinois Crop Improvement Association Composition Tests<br><input type="checkbox"/> U of I Department of Crop Sciences Performance Trials |
|---|--|

2. Do any of your seed dealers provide information about difference in oil and protein contents among varieties? ☐ Yes ☐ No

3. Please list soybean variety and estimated acreage planted for 1997 and estimated for 1998. Be sure to list any new varieties you plan to plant in 1998.

Variety ( <i>Example: Wilkens 2565</i> )	1997 Acres	1998 Acres
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Please circle a number indicating how much you consider each of the following factors when you select soybean seed.

	Very Important	Somewhat Important	Not Very Important
Maturity date .....	5	4	3
Disease resistance .....	5	4	3
Oil and protein contents .....	5	4	3
Company reputation .....	5	4	3
Resistance to lodging .....	5	4	3
Resistance to shatter .....	5	4	3
Herbicide compatibility (example: Roundup ready) ...	5	4	3
Previous experience (your or your neighbors) .....	5	4	3
I have a contract with a buyer that specifies the varieties I can plant .....	5	4	3
Yield .....	5	4	3
Seed price .....	5	4	3
Other: _____	5	4	3

5. Please describe more about how you choose varieties.

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6. What percent of soybean seed that you used last year was from your previous year's crop (you actually grew it yourself) rather than purchased from a seed dealer? \_\_\_\_\_ %